WHAT IS CLAIMED IS:

1. A sensor, comprising:

a semiconductor substrate having a well of a membrane, wherein a sidewall of the well is insulated and a bottom of the well includes an insulation film;

a sensor material being placed inside the well and having a variable electrical characteristic according to a physics quantity to be sensed;

a heater being placed in the membrane and keeping a temperature of the sensor material constant; and

an electrode being contacted with the sensor material and measuring an electrical characteristic of the sensor material.

2. The sensor of claim 1, wherein the membrane is a double film of a silicon oxide and a silicon nitride.

3. The sensor of claim 1, wherein the physics quantity is a liquid component, a light, or a gas.

4. The sensor of claim 1, wherein the sensor material is a mixture of an insulator and a conductor.

5. The sensor of claim 1, further comprising an insulation film between the semiconductor substrate and the electrode.

6. The sensor of claim 5, wherein the membrane is a double film of a silicon oxide and a silicon nitride.

7. The sensor of claim 5, wherein the physics quantity is a liquid component, a light, or a gas.

8. The sensor of claim 5, wherein the sensor material is a mixture of an insulator and a conductor.

9. A method for manufacturing a sensor, comprising the steps of:

forming an electrode on one side of a semiconductor substrate;

forming an insulation film corresponding to a membrane on one side of the semiconductor substrate;

forming a heater on one side of the semiconductor substrate;

removing a part corresponding to a well from the other side of the semiconductor substrate to expose the electrode; and

placing a sensor material inside the well.

10. The method for manufacturing a sensor of claim 9, further comprising a step of forming an insulation film before the step of forming the electrode.

11. The method for manufacturing a sensor of claim 9, further comprising a step of forming a protection film for protecting the heater after the step of forming the heater.

12. The method for manufacturing a sensor of claim 9, wherein the step of removing a part corresponding to a well comprises the steps of:

forming a bulk etching mask in the other side of the semiconductor substrate;

removing a part corresponding to a well from the other side of the semiconductor substrate to expose the electrode; and

insulating a part corresponding to the sidewall of the well.

13. The method for manufacturing a sensor of claim 9, wherein the step of forming the membrane includes a step of depositing a silicon nitride and a silicon oxide.